

# A Case Report on the Treatment of Extrusive Luxation and Root Fracture in Primary Teeth

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## Introduction

Extrusive luxation and root fracture are dental traumas often encountered in primary dentition, particularly in children due to their high levels of physical activity and frequent falls. Unlike adult teeth, primary teeth present unique challenges in dental trauma management due to their proximity to developing permanent teeth. The treatment of extrusive luxation, characterized by partial displacement of the tooth from its socket, and root fracture, where the root is broken either horizontally or obliquely, requires a nuanced approach that prioritizes the health of both the injured primary tooth and the underlying permanent successor. Failure to address these injuries adequately can lead to complications, including infection, delayed eruption, or even malformation of the permanent teeth [1].

The case involved a four-year-old child who sustained trauma to the maxillary anterior teeth following a fall. Upon examination, one of the primary central incisors exhibited signs of extrusive luxation and root fracture. Clinical examination revealed that the affected tooth was partially displaced out of the alveolar socket, with signs of mobility and tenderness. Radiographic imaging confirmed the presence of a root fracture along with the extrusive luxation. The prognosis for such injuries in primary teeth can vary depending on the extent of luxation, fracture location, and age of the patient. Given the child's young age, a conservative approach was deemed most appropriate to avoid unnecessary stress and potential damage to the underlying permanent tooth germ. Treatment was planned in a manner that would help retain the injured tooth for as long as it remained symptom-free while monitoring for any signs of infection or interference with the development of the permanent tooth [2].

## Description

The initial treatment involved repositioning the extruded tooth under local anesthesia. Using gentle pressure, the tooth was carefully realigned within the alveolar socket to reestablish a proper occlusal relationship with the opposing teeth. Stabilization was achieved through a flexible splinting technique, where a semirigid splint was applied to immobilize the tooth and allow for healing of the periodontal ligament. The splint was left in place for approximately two weeks, a period considered optimal for primary teeth, as it permits some mobility while preventing excessive movement that could exacerbate the injury [3].

Following the splinting procedure, the patient and the parents were instructed on the importance of maintaining oral hygiene to prevent infection. Regular follow-up visits were scheduled to assess healing, check for any signs of infection, and monitor the eruption and development of the permanent tooth. After two weeks, the splint was removed, and the tooth was found to be stable within the socket. Radiographic imaging confirmed that no pathological changes had developed, and the child showed no signs of discomfort. Over the next several months, the patient was closely monitored to ensure that the healing process continued without complication. During follow-up examinations, the primary tooth showed no evidence of root resorption, and no radiographic signs of disruption to the underlying permanent tooth germ

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were observed [4].

The child's parents were educated about potential complications and advised to bring the child for immediate consultation if any signs of infection or unusual symptoms occurred. After one year, the tooth remained asymptomatic and stable, and the surrounding periodontal tissues were healthy. No further treatment was deemed necessary as the child approached the age when normal exfoliation of primary teeth typically occurs. This outcome reflects the success of the conservative approach in preserving the tooth until its natural exfoliation [5].

## Conclusion

This case report highlights a conservative and child-centered approach to managing extrusive luxation and root fracture in primary teeth. By repositioning the extruded tooth, stabilizing it with a flexible splint, and monitoring closely for complications, it was possible to preserve the injured tooth without affecting the underlying permanent dentition. The decision to avoid invasive procedures aligned with the priority of minimizing trauma to the child and avoiding interference with the development of the permanent successor tooth. The successful outcome of this case underscores the importance of careful diagnosis, tailored treatment, and vigilant follow-up in cases of primary tooth trauma. It emphasizes the need for a conservative approach in pediatric dentistry, where the focus should be on preserving function and aesthetics while safeguarding the future health of the permanent dentition. Through appropriate management, including repositioning and splinting, extrusive luxation and root fractures in primary teeth can often be resolved with minimal long-term impact, enabling the child to transition naturally to their permanent teeth with minimal disruption.

## Acknowledgement

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## Conflict of Interest

None.

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